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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RAGHU M. RAMAJOIS, MARK R. ATKINS, THOMAS P. MALONEY and BENJAMIN R. HAMM

Appeal 2009-003243
Application 10/766,917
Technology Center 3600

Decided: September 23, 2009

Before: WILLIAM F. PATE, III, JOHN C. KERINS and MICHAEL W. O'NEILL, *Administrative Patent Judges*.

PATE, III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a rejection of claims 1-20. App. Br 2. We have jurisdiction under 35 U.S.C. § 6(b).

The claims are directed to a vent assembly. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A vent assembly for a housing containing a lubricating fluid and accommodating a gear mechanism, said vent assembly comprising:
>
> a hollow casing including a continuous side wall having at least one hole there through, the hollow casing having an opening formed in a lower portion thereof; and
>
> a vent tube extending within said hollow casing so as to form a cavity between an inner peripheral surface of said casing and an outer peripheral surface of said vent tube, said vent tube having a first open end disposed within said hollow casing and a second end extending outside said casing in communication with an external environment.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Terwoerds	US 3,422,982	Jan. 21, 1969
Fukunaga	US 4,351,203	Sep. 28, 1982
Azuma	US 4,595,118	Jun. 17, 1986
Rodgers	US 5,724,864	Mar. 10, 1998

Claims 1, 2, 5-10, 12, 15, 16, 19 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga and Azuma. Ans. 3, 6, 10.

Claims 3, 11, 13 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga, Azuma and Rodgers. Ans. 5, 8.

Claim 4, 14 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga, Azuma, Rodgers and Terwoerds. Ans. 6, 9.

ISSUE

Appellants argue the rejected claims 1, 2, 5-10, 12, 15, and 16, as a group. App. Br. 5-8. We select claim 1 as the representative claim, and claims 2, 5-10, 12, 15, and 16, stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii)(2008). Appellants contend that the prior art fails to disclose a vent assembly having both a hollow casing including a continuous side wall having at least one hole therethrough, and an internal vent tube. App. Br. 5 The Examiner concludes that it would have been obvious to one of ordinary skill in the art to combine the teachings of Azuma relating to the vent tube with Fukunaga's teaching to place holes in the hollow casing. Ans. 4. Appellants contend that by providing baffle plate 40, to prevent entry of oil into Azuma's vent body, Azuma teaches away from providing at least one hole in the casing as taught by Fukunaga. App. Br. 6; Reply Br 3-7. In light of these contentions, we must determine whether Appellants have established that the Examiner erred by determining that the subject matter of claim 1 would have been obvious in view of Fukunaga and Azuma.

Appellants additionally contend that there is no reason to incorporate the teachings of Rodgers' beveled drainback tube 114 into Fukunaga and Azuma. App. Br. 6-7. The Examiner contends that such a modification would have been obvious in order to increase the surface opening of the passageway. Ans. 5. In light of these contentions we must determine whether Appellants have established that the Examiner erred by determining

that the subject matter of claims 3, 11, 13 and 17[1] would have been obvious in view of Fukunaga, Azuma and Rodgers.

Finally, we must determine whether Appellants have established that the prior art fails to disclose the casing having a bottom end wall substantially closing the casing as required by claims 19 and 20. App. Br. 8.

FINDINGS OF FACT

1. Azuma discloses deflector 20 ("a hollow casing") having plug body 32 ("vent tube") extending therein. Fig. 2; col. 2, ll. 64-65.
2. In order to prevent or discourage oil from entering into the deflector 20 Azuma provides a baffle plate 40 on the upstream side of the deflector 20. Col. 3, ll. 32-37.
3. Azuma does not provide any holes in the side walls of the casing.
4. Fukunaga discloses a deflector 5 ("a hollow casing") including a side wall having at least one opening 55. Four equiangularly spaced openings 55, 55' may be formed in the tubular wall to ensure at least one hole is located on the downstream side of the deflector 5 regardless of the angular position of the deflector. Col. 2, ll. 49-59; fig. 2.
5. Fukunaga teaches that leakage of lubricant via an opening 55' located on the upstream side of the deflector does not occur easily due to the fact that the diameter of the opening is small, the lubricant has a large viscosity, and the pressure difference is small. Even if a small amount of lubricant leaks into the deflector 5, it is prevented from being exhausted

[1] We understand "rube" in claim 17 to mean "tube." Correction should be required in any further prosecution.

due to the ventilation effect R of opening 55. Col. 2, l. 66 - col. 3, l. 29; fig. 2.

6. Fukunaga's seat 7 ("vent tube") does not extend into the deflector 5 ("the hollow casing"). Fig. 2.
7. Rodgers discloses a breather assembly 100 having a drainback tube 114 having a beveled end 116 which increases the surface opening of passage 124 in order to prevent lubricant from bridging the opening. Col. 4, ll. 24-31.
8. The fact that Azuma employs a baffle on the upstream side of the casing to discourage lubricant from entering into the casing would not have led one of ordinary skill in the art away from placing at least one hole in the casing wall since that hole may be placed on the downstream side as taught by Fukunaga.
9. Terwoerds teaches a breather device having several vent holes 24.

PRINCIPLES OF LAW

The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. The key to supporting any prima facie conclusion of obviousness under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Court in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) noted that the analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit. The Federal Circuit has stated that "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*,

441 F.3d 977, 988 (Fed. Cir. 2006), cited with approval in *KSR*, 550 U.S. at 418.

The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR*, 550 U.S. at 416. A prima facie conclusion of obviousness may be supported by a showing that the claims are directed to a process, machine, manufacture, or composition of matter already known in the prior art that is altered by the mere substitution of one element for another known in the field, and such modification yields a predictable result. *See id.* (citing *United States v. Adams*, 383 U.S. 39, 40 (1966)). The Court further stated that:

> [I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

KSR, 550 U.S. at 417. When considering obviousness of a combination of known elements, the operative question is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.*

The test for obviousness is not whether the claimed invention is expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550 (Fed. Cir. 1983). "When a piece of prior art 'suggests that the line of development

flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant' the piece of prior art is said to 'teach away' from the claimed invention." *Medichem, S.A. v. Rolabo, S.L.,* 437 F.3d 1157, 1165 (Fed. Cir. 2006). Whether a reference teaches away from a claimed invention is a question of fact. *In re Harris,* 409 F.3d 1339, 1341 (Fed. Cir. 2005).

ANALYSIS

The subject matter of claim 1 involves no more than the predictable use of prior-art elements according to their established functions. *See* Facts 1-6. It would have been obvious to one having ordinary skill in the art to provide Fukunaga's holes on the downstream wall of the casing in order to exhaust air in that region. It would also have been obvious to one having ordinary skill in the art to extend the vent tube into the casing as shown by Azuma since one of ordinary skill in the art would recognize that doing so would create a baffle that discourages any oil that might enter through cutouts 26A from entering the vent tube 30. Thus, both Azuma and Fukunaga would have suggested to one of ordinary skill in the art a reason for combining their known prior-art elements in the manner suggested by the Examiner. App. Br. 5; Reply Br. 3.

Appellants' assertion that Azuma and Fukunaga are designed to be placed in different regions in relation to the oil flow is inaccurate. App. Br. 5-6; Reply Br. 4-6. Like Azuma, Fukunaga is intended to be within the flow of lubricant when operation of the gears causes the oil level to rise. Fukunaga col. 2, ll. 64-65; figs. 1-2; Azuma col. 2, ll. 36-38; col. 3, ll. 31-36; figs 1-2. The fact that Azuma employs a baffle on the upstream side of the

casing to discourage lubricant from entering into the casing would not have led one of ordinary skill in the art away from placing at least one hole in the casing wall. Fact 8. The claim does not require the hole in the casing wall to be on the upstream side of the casing so there is no reason why providing a hole on the downstream side, for example, as taught by Fukunaga would interfere with the operation of Azuma's baffle. Although Fukunaga places holes in both ends of the casing, it is clear that the preferred location is on the downstream end. *See* Fact 4. Furthermore, both Azuma and Fukunaga aim to prevent entry of oil into the casing. Azuma may discourage allowing oil into the casing, however Fukunaga specifically discloses that the holes 55, 55' in the casing do not allow this. Fact 5. For these reasons, Appellants have not established that Azuma teaches away from the claimed invention. App. Br. 5-6; Reply Br 4-6.

Regarding the rejection of claims 3, 11, 13 and 17, we agree with the Appellants that it would not have been obvious to use the tube with the oblique end as disclosed in Rodgers in the device resulting from the combination of Azuma and Fukunaga. Rodgers' teaching of providing a beveled end is an alternative to the casing structure of Azuma and Fukunaga and not the vent tube. The Examiner has therefore failed to articulate a reason with a rational underpinning for incorporating the oblique or beveled end of Rodgers into the vent tube of Azuma and Fukunaga. Thus, the Examiner has failed to make a prima facie case of obviousness with respect to the rejection of claims 3, 11, 13 and 17. Since Terwoerds does not cure this deficiency, the rejection of dependent claims 4, 14 and 18 also cannot be sustained.

Regarding claims 19 and 20, Appellants have not provided any reason why, and have therefore not established, the Examiner erred by determining that the angled surface at the bottom of the casing is a bottom wall substantially closing the casing as required by claims 19 and 20. App. Br. 8. It is additionally noted that the embodiment depicted in Figure 5 of Fukunaga also discloses this feature.

CONCLUSIONS OF LAW

On the record before us, Appellants have not established that the Examiner erred by rejecting claims 1, 2, 5-10, 12, 15, 16, 19 and 20 as being unpatentable over Fukunaga and Azuma. Appellants have established that the Examiner erred by rejecting claims 3, 11, 13 and 17 as being unpatentable over Fukunaga, Azuma and Rodgers, and claims 4, 14 and 18 as being unpatentable over Fukunaga, Azuma, Rodgers and Terwoerds.

DECISION

For the above reasons, the Examiner's rejection of claims 1, 2, 5-10, 12, 15, 16, 19 and 20 is affirmed and the Examiner's rejections of claims 3, 4, 11, 13, 14, 17 and 18 are reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). See 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

mls

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